Silpha carinata Herbst (Col.: Silphidae) Confirmed as a British Breeding Species

By David R. Nash*

In an earlier paper (Nash, 1975) *Silpha carinata* Herbst was re-instated in the British list on the basis of a single specimen captured in April 1974 on the edge of a wooded area near Salisbury, Wiltshire, and a table was given to facilitate the separation of the species from *S. tristis* Illiger.

In an attempt to prove that *S. carinata* was resident in the locality and refute any suggestion that the single example found was merely a casual immigrant, the site of the original capture was visited on 29th October, 1975. As might be expected after a lapse of 18 months, the straw heap which had contained the single example of *carinata* had completely rotted down and now supported a flourishing bed of stinging nettles. Grubbing at the roots of these proved painfully unproductive and searching at the roots of vegetation nearby, and under stones, was fruitless.

The locality was not visited again until 12th August, 1976. On this occasion, with the temperature in the mid-80's Fahrenheit and drought conditions prevailing, nine pitfall traps made from plastic beakers (8 cm. deep x 7 cm. aperture) were set up around the site of the straw heap within a circle of about 20 m. radius. Each trap was baited with just enough fresh fish to cover its base to a depth of about 1 cm. In addition, small pieces of fish were placed in cavities excavated under large flints, and entrance holes allowing access to the bait were dug out of the turf around the stones. Searching in this area once again proved unproductive as did a day-long diligent search of adjacent areas. However, just as I was completing my planned collecting circuit for the day and was about ½ km. from the straw site, I came upon a narrow, mown ride on the woodland edge with the cut vegetation lying where it had fallen. Turning over the relatively dry vegetation quickly revealed two teneral examples of *Silpha carinata* on the slightly damp ground beneath, together with cast Silphid larval skins. The desiccated remains of three other adults (two of them partly eaten) were found lying in the open on the mown surface of the ride.

Returning to the locality on 16th August, I found that four *carinata* had been attracted to the baited pitfall traps. Three were alive but the fourth was dead, its abdomen having been eaten—presumably by the other insects attracted to the fish. Other Coleoptera found in the traps included *Thanatophilus sinuatus* (F.), *Nicrophorus vespilloides* Herbst, *N. vespillo* (L.), *N. investigator* Zett., *Ontholestes murinus* (L.), *Creophilus maxillosus* (L.) and numerous Histerids. A single example of *Silpha tristis* was found near fish bait placed under a polythene fertiliser sack. One *carinata* had been attracted to fish bait under a flint and a further example was observed under a non-baited flint close by. Further searching under the

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now very dry and dusty grass in the mown ride which had yielded examples of *carinata* four days earlier failed to turn up any more examples, but a single specimen was found under a stone further along the ride.

A further visit was made to the locality on 12th April, 1977 to try to obtain further data concerning the life-cycle of the species. No *carinata* were found under stones in the straw heap area, but a male and female, both with damaged legs, were discovered in moss in a clearing on the woodland edge in a new 1 km. N.G. square. The beetle is thus recorded from three adjacent 1 km. squares. (A single *S. tristis* was also found in the moss.)

The capture of these two examples in the Spring, plus my original specimen (also found in April), would appear to confirm that *carinata* overwinters as an adult as suggested by Heymons *et al.* (*loc. cit.*). The presence of teneral examples in mid-August also supports the latter author's finding that the new generation of *carinata* emerges as adults of the old generation die off in July and August.

Facilities away from home did not allow precise and detailed experiments to be carried out to investigate the food preferences of *S. carinata.* The summer specimens retained, however, were placed in individual plastic containers with grass cuttings, etc. and were supplied with a selection of animal and plant foodstuffs, only one food item at a time (apart from the grass) being placed in each container. The following were eaten: a piece of runner bean, a blackcurrant leaf, a dead blowfly maggot, a dead earthworm, and a dead Tipulid larva. Live maggots did not produce much response from the beetles when introduced into their containers, but one live maggot left with a beetle was consumed, only the skin being found a day or so later. Dead, squashed maggots appeared in almost every case to initiate immediate feeding. If a beetle was touched when resting or during feeding, it usually raised its abdomen and often emitted a brown fluid from the anus. Such disturbance often resulted in thanatosis.

These meagre and inadequate data do not appear to support the findings of Heymons *et al.* (1926-33) who stated that *S. carinata* would *only* feed upon flesh. (Unfortunately, I have been unable to study this work in the original.) Available data would seem to suggest that, while a few of our Silphidae are exclusively predaceous, e.g. *Dendroxena* (=*Xylodrepa*) and *Ablattaria,* the majority will probably often feed as adults on both animal or plant material. Even in the genus *Nicrophorus* in which most adults of our species (apart from *N. vespilloides*) have been shown to feed almost exclusively on carrion or Dipterous larvae, there are occasional exceptions. Three specimens of *N. vespillo* (L.), for example, have been reported as feeding immediately and actively for three days upon the leaves and buds of *Cichorium endivia* L. in preference to meat which was readily available at the same time (Leclercq, 1954). The presence of *carinata* in fish-baited pitfall traps could indicate only that the beetle seems to be especially attracted to rotten

flesh or that it is particularly active on the surface of open ground and readily falls into such traps.

Examination of the specimens of *S. carinata* obtained, indicates that all save one of the characters presented in the table in my original paper (*loc. cit.*, 286) hold good. It was stated there on the basis of the then unique British specimen, that the middle elytral keel was reflexed for its last mm. to run parallel to the suture. This was found to occur in only about half the *carinata* subsequently examined. In the others, the keel tended to become evanescent towards the elytral apex with little, or no, indication of any continuation parallel to the suture.

Mr. A. A. Allen has very kindly drawn my attention to an additional important character concerning the elytral keels which I had overlooked. In *carinata,* the inner and outer keels are almost equally strongly continued to the elytral base; the middle keel, however, does not reach so far forward and becomes gradually weaker in the scutellary region, eventually fading out entirely before the elytral base. In *tristis,* all three keels are more-or-less equally strongly continued to the base of the elytra.

It was also noted (*ibid.*, 287) that the scutellum of the beetle studied was punctured only in its middle part and was smooth and shining—particularly towards its upper corners. Study of further material indicates that the scutellum usually tends to be rather thickly punctured over most of its surface. However, in all examples of *carinata* studied, the sides forming the apex of the scutellum 'V' are convex, unpunctured and shining, and border a distinct apical depression. In *tristis,* the sides of the scutellum at its apex are not markedly convex, usually sparingly punctured, and there is either no apical depression, or else only a very shallow one.

A further useful character not remarked upon in my original paper, is afforded by the elytral sculpturation. In *carinata* the punctures are large and crater-like and the surface between them is uneven. Each puncture has at its base a distinct, shining, thorn-like tubercle which bears a seta. In *tristis* the punctures are smaller and shallower, notched, and with the surface between them relatively smooth and even. The punctures bear tubercles with setae, but these are smaller and less prominent than in *carinata.*

Specimens of *carinata* are to be presented to the British Museum (Nat. Hist.) and Manchester Museum.

Summary

(a) Further examples of *Silpha carinata* Herbst are reported from Wiltshire proving that the insect is a breeding British species. (b) The feeding habits of *carinata* and other Silphidae are briefly discussed. (c) Additional notes on the separation of *S. carpinata* from *S. tristis* Illiger are provided.

References

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TRICHOPTERYX POLYCOMMATA D. & S. IN EASTBOURNE. — Upon the 12th and 14th of April, 1977, in the company of Mr. S. Pooles, I investigated some large stretches of privet near Friston Forest. Our visits were repayed with a combined total of 16 specimens seen, several of which were captured. This is the first time this species has been taken in Eastbourne since the records in Adkin (1930). — M HADLEY, 7 Beverington Close, Eastbourne.

WALL BUTTERFLY, PARARGE MEGERA L. IN WEST YORKSHIRE. — On 8th July, 1977, whilst on holiday near Heptonstall above Hebden Bridge in Yorkshire, I visited Walshaw Dean where three reservoirs supply water to Halifax. At a spot below the reservoirs and about 900 feet above sea level, there is a little two-arched stone bridge over the Alcomden Water reminiscent of pack-horse days. It was a short distance below here beside the path which forms part of the Pennine Way that I observed a Wall Butterfly, *Pararge megera* L. It settled on the grass and I was able to see it from about two feet distance and note that its forewings were slightly chipped. The grid reference was SD 955320. As a boy I lived at Todmorden and often collected lepidoptera in the area but I never encountered this species. Walshaw Dean nestles below Withins and Haworth Moor of Brontë fame and it was with some nostalgia I revisited it after 45 years absence. My first visit had been on 19th July, 1932. On that occasion I walked from Todmorden by way of Whirlaw, Limpus Field, Chisley, Jack Bridge, Gorple and Blakedean where I looked into the little Baptist chapel graveyard and then continued up Walshaw Dean. It was while sitting on the twin-arched bridge over the Alcomden Water that I was favoured with the visits of two Pied Wagtails, a pair of Water Voles and a swiftly flying Kingfisher — an experience which I began to think was a dream until today I unearthed an old notebook and found the written record. This year (1977) I found Wild Thyme growing on the roadside and at Blakedean there were Goldfinches, a pair of Whinchats and the forewing of a male Northern Eggar, *Lasiocampa quercus* ssp. *callunae*, which may have fallen victim to the Whinchats. The Small Heath, *Coenonympha pamphilus* L. was on the wing in grassy spots near Blakedean and more than one Grey Mountain Carpet, *Entephria caesiata* D. & S., started out from its rocky resting place. But one wonders if other observers have noted the Wall in these upland parts of West Yorkshire? — ALBERT G. LONG, Hancock Museum, Newcastle-upon-Tyne.